CLAIMS

We claim:

1. An antiviral agent selected from the group consisting of an altered *MAB1* gene, an altered *MAB2* gene, an altered *MAB3* gene, an altered *OLE1* gene, gene homologs and related genes,

wherein the agent is capable of inhibiting viral replication in a host cell.

2. The agent of claim 1 wherein the cell is a microbe.

3. The agent of claim 1 wherein the cell is a eukaryotic cell.

4. The agent of claim 3, wherein the cell is a plant or animal cell.

5. The agent of claim 3 wherein the cell is a yeast cell.

6. The agent of claim 1, wherein the agent comprises a dominant negative mutation.

7. A method of creating a virus-resistant organism comprising creating a transgenic organism comprising an antiviral agent selected from the group of an altered *MAB1* gene, *MAB2* gene, *MAB3* gene, *OLE1* gene, homologs of these genes, related genes, and combinations of these genes and homologs.

8. The method of claim 7 wherein the agent is a dominant negative mutation.

9. The method of claim 7 wherein the organism is a plant.

10. The method of claim 7 wherein the organism is an animal.

11. A method of creating a virus-resistant organism comprising creating a transgenic organism comprising an antiviral agent selected from the group of antisense, sense, or double-stranded sequences designed to alter the expression of *MAB1*, *MAB2*, *MAB3* or *OLE1* or alter the expression of *MAB1*, *MAB2* or *MAB3* homologs or genes related to *MAB1*, *MAB2* or *MAB3*.

12. The method of claim 11 wherein the organism is a plant.

13. The method of claim 11 wherein the organism is an animal.

14. A method of decreasing viral replication in an organism comprising the step of decreasing the expression of *MAB1*, *MAB2*, *MAB3*, or *OLE1* in the organism.

15. A method of increasing or optimizing replication of a virus or virus derivative, by expression of *MAB1*, *MAB2*, *MAB3* or *OLE1* or a related or homolog gene from the same or different cell type, or combinations of such genes, or expression of modified versions of such genes, or alteration of the natural expression levels of such genes, to optimize the replication of the virus or derivative.

16. The method of claim 15, wherein the viral derivative is an expression vector derivative.

17. The method of claim 15, wherein the viral replication is within a plant cell.

18. The method of claim 15, wherein the viral replication is within an animal cell.

19. The method of claim 15 wherein the viral replication is within a microbial cell.

20. The method of claim 15 wherein the viral replication is within a yeast cell.

21. A method of evaluating a substance as an antiviral therapy, comprising the steps of

a) exposing a substance to a protein selected from the group consisting of the *MAB1*, *MAB2*, *MAB3* or *OLE1* expression products, and

b) evaluating the effect of the substance on the stability of the expression product, wherein the inhibition of the expression product indicates that the substance is a possible antiviral therapy.

22. A method of evaluating a substance as an antiviral therapy, comprising the steps of

a) exposing a substance to a protein selected from the group consisting of the *MAB1*, *MAB2*, *MAB3* or *OLE1* expression products, and

b) evaluating the effect of the substance on the stability of the expression product, wherein the inhibition of the expression product indicates that the substance is a possible antiviral therapy.

23. A method of evaluating a substance as antiviral therapy, comprising the step of

a) exposing the substance to a protein expression system, wherein the system expresses a protein selected from the group consisting of *MAB1*, *MAB2*, *MAB3* or *OLE1* expression products, and

b) evaluating the effect of the substance on the expression level of the expression product, wherein the inhibition of the expression level indicates that the substance is a possible antiviral therapy.

24. A method of evaluating a substance as an antiviral therapy, comprising the step of

a) exposing a substance to a transcription system, wherein the system transcribes an mRNA product selected from the group consisting of *MAB1*, *MAB2*, *MAB3* or *OLE1* mRNAs, and

b) evaluating the effect of the substance on the expression level of the mRNA product, wherein the inhibition of the expression level indicates that the substance is a possible antiviral therapy.

25. A method of evaluating a substance as an antiviral therapy, comprising the step of

a) exposing a substance to a transcription system, wherein the system transcribes an mRNA product selected from the group consisting of *MAB1*, *MAB2*, *MAB3* or *OLE1* mRNAs, and

b) evaluating the effect of the substance on the stability of the mRNA product, wherein the decrease in stability indicates that the substance is a possible antiviral therapy.

26. A method of evaluating a substance as an antiviral therapy, comprising the steps of

a) exposing a substance to a Δ9 fatty acid desaturase enzyme, and

b) evaluating the effect of the substance on the stability of the enzyme, wherein decrease in stability indicates that the substance is a possible antiviral therapy.

27. A method of evaluating a substance as an antiviral therapy, comprising the steps of

a) exposing a substance to a Δ9 fatty acid desaturase enzyme, and

b) evaluating the effect of the substance on the activity of the enzyme, wherein the inhibition of activity indicates that the substance is a possible antiviral therapy.

28. A method of evaluating a substance as antiviral therapy, comprising the step of

a) exposing a substance to a protein expression system, wherein the system expresses a Δ9 fatty acid desaturase enzyme, and

b) evaluating the effect of the substance on the expression level of the enzyme, wherein the inhibition of the expression level indicates that the substance is a possible antiviral therapy.

29. A method of evaluating a substance as an antiviral therapy, comprising the step of

a) exposing a substance to a transcription system, wherein the system transcribes a Δ9 fatty acid desaturase enzyme mRNA product, and

b) evaluating the effect of the substance on the expression level of the mRNA product, wherein the inhibition of the expression level indicates that the substance is a possible antiviral therapy.

30. A method of evaluating a substance as an antiviral therapy, comprising the step of

a) exposing a substance to a transcription system, wherein the system transcribes a Δ9 fatty acid desaturase enzyme mRNA product, and

b) evaluating the effect of the substance on the stability of the mRNA product, wherein the decrease in stability indicates that the substance is a possible antiviral therapy.